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The Rapid Cure of Rotary-Lateral Curvature of the Spine and other Postural Deformities

By Means of Thorough Development and Corrective Exercises with Heavy Weights.

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THE RAPID CURE OF ROTARY-LATERAL CURVATURE OF THE SPINE AND OTHER POSTURAL DEFORMITIES

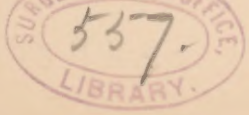
BY MEANS OF THOROUGH DEVELOPMENT AND CORRECTIVE EXERCISES WITH HEAVY WEIGHTS.*

By JACOB TESCHNER, M. D.,
NEW YORK.

A PAPER † read by me before the Orthopædic Section of the New York Academy of Medicine, May 17, 1895, was entitled The Treatment of Postural Deformities of the Trunk by Means of Rapid and Thorough Physical Development. In that paper I outlined my views concerning the more important ætiological factors in the causation of these deformities. The plan of treatment devised by me was demonstrated by patients, and the cases of nine patients were reported, five of whom were presented. The cases were: One of very marked one-sided deformity of the sterno-costal articulations, cured; two of firmly fixed and severe scoliosis, of many years' standing, with firm and resisting

* Read before the tenth annual meeting of the American Orthopædic Association, held in Buffalo, May 19, 20, and 21, 1896.

† *Annals of Surgery*, Philadelphia and London, August, 1895.



bony and ligamentous changes, markedly improved; and six of ordinary rotary-lateral curvature of the spine, three of which were partially fixed, all cured. These cases were treated for different periods from six weeks to four months.

Since October last I have discharged twelve patients as cured. Such uniformly good results as I have obtained in a class of cases the treatment of which up to the present time has been, at best, very unsatisfactory in the hands of orthopædic surgeons generally, suffice to justify me in maintaining the curability of these deformities. Hence the title of this paper.

I shall present to you the salient points of the treatment, and demonstrate to you the character of the work. I shall also show you the different immediate effects of the corrective exercises upon the trunk as a whole, and especially upon the vertebral column.

Believing that the most important ætiological factor in the causation of these deformities is a weakened or rudimentary condition of the muscular systems generally, or of certain muscular groups in particular, I hold that all the muscles should be developed, educated, and strengthened to their fullest extent, not only in those cases where the tendencies to deformities are known to exist, but also where deformities, whether habitual or fixed, are present, so that they may be cured, improved, or prevented from becoming worse.

I shall quote from my former paper:

"All orthopædists are agreed that exercises, when properly given, are beneficial; but the degree of benefit must necessarily depend upon the muscular ability and the strength and the will of the individual patient to correct, or to partially correct, a faulty attitude or deformity.

"In considering the question of muscular development, I wish to state that I have renounced and discontinued all

supporting and immobilizing appliances, as described in my paper,* in any and all cases which I consider amenable to treatment.

"The objection to all supporting appliances is that each and every one will, to a greater or less extent, interfere with the mobility, and in that manner deprive the back, chest, and abdominal muscles of that perfect freedom of action which is a necessary and powerful adjunct in the successful treatment by gymnastics. In the treatment of deformities the aim is and has been to correct the deviations from the normal by such exercises as will educate the different groups of muscles to sufficient and proper exertion to enable the patient to assume as nearly as possible a normal attitude. This muscular education is dependent upon strength and development, without both of which we must largely fail to obtain that proper and vigorous muscular action upon which any beneficial results from corrective exercises must depend. Therefore it is necessary and imperative in all cases which require or are amenable to treatment to attain the highest type of development possible of the entire body, to render the spine mobile in all directions, and also to develop the full strength of each patient. Individual work only can accomplish this end, because it is of the highest importance to carefully watch every movement of the patient, and to immediately correct any and all errors in attitude, deportment, or exercise."

"The important points to be observed in the development of strength and muscle are correct attitude, ease and grace and rhythm of motion, and automatic and independent and full action of only those groups of muscles which

* Observations on the Rotary-Lateral Curvature of the Spine, with Special Reference to the Ætiology and Treatment. Read before the Surgical Section of the Pan-American Medical Congress, at Washington, D. C., September 5, 1893. *Medical Record*, December 16, 1893.

are called into play by the performance of each separate exercise, and each group of muscles automatically exercised until it is thoroughly tired. No muscle can be properly developed unless it is tired by frequent and uninterrupted automatic contractions and relaxations.

"All exercises with light weights should be executed in a closely fitting jersey suit before a mirror, so that the patients can hold themselves in the proper position while going through the different movements. By doing this they can see when the position is faulty, either by reason of a sagging of the trunk or through the lack of co-ordination of all those muscles which are to remain fixed while certain groups are in action, and they can correct their faults. It also materially assists in the acquisition of grace and ease in working automatically. Exercise in this manner brings about a forced and habitually corrected pose and carriage, while the strength and muscles necessary to maintain a correct position are being developed.

"Taking the standpoint that (1) lack of strength and lack of muscular development, (2) habitual faulty position with superimposed weight, and (3) lack of co-ordinating power or lack of muscular control are the more potent ætiological factors in producing deformities, it is and has been my aim—and I believe that I have succeeded—in correcting deformities by reversing these conditions: that is, (1) by developing the muscles and their strength; (2) by acquiring an habitually corrected position with superimposed weight; and (3) by educating all the muscles to proper co-ordination and to complete control.

"A pair of dumb-bells weighing from half a pound to five pounds are used in a series of twenty-six exercises for the development of the muscles."

In addition to these development exercises, I give the patients work with heavy bars and bells at each visit to my

office. The weight of the bars and bells and the number of times that each heavy weight or pair of weights is handled, depend upon the strength, capacity, and upon the endurance of the individual. It is my practice to put each patient to his or her individual limit of work at each visit, and that limit is invariably extended at each succeeding visit, unless the patient is indisposed. The strength and endurance, as shown by the amount of weight handled, and the number of times each weight and set of weights are handled, increases very decidedly in every case from one visit to another. This increase is largely dependent upon correctness of posture and precision in the work. This is a matter of record in all my cases, as I keep a tabulated statement of all the work, designating the weights used and the exact number of times each exercise has been performed. This heavy work develops the strength to the fullest xtent, and it is by means of this work that I have been enabled to correct severe deformities even where bony and ligamentous changes and marked rotation were present. This is my corrective work, which I will demonstrate:

Bells, weighing from five to eighty pounds each, and steel bars and bar bells, weighing from twenty-six to over one hundred and eleven pounds, are used in different ways. Bells are pushed from the shoulders above the head alternate-by as often as the patient can.

"The patient is instructed to swing a heavy bell with one hand from the floor above the head and down again, the elbow and wrist being fixed, and the motion repeated as often as possible in a systematic manner; then with the other hand the same number of times, and later with both. This exerts all the extensor muscles from the toes to the head in rapid succession.

"When a heavy bell is pushed or swung above the head

on the side opposite the scoliosis, the action of the back muscles, to sustain the weight and equilibrium, is such as to cause the curved spine to approximate a straight line. A similar result is produced when a heavy weight is held by the side of the erect body on the scoliotic side, the arm being at full length.

"When a heavy bar is raised above the head with both hands, the patient must fix the eyes upon the middle of the bar to maintain an equilibrium. This necessitates the bending of the head backward, the straightening and hyperextending of the spine, and consequently correcting a faulty position with a weight superimposed. The heavier the weight put above the head, whether with one hand or with two, the more the patient must exert himself or herself to attain and maintain a correct or an improved attitude in order to sustain the equilibrium. (By an improved attitude I mean the greatest amount of correction of the deviation of the spine that the fixation of a deformity will allow of.) Hence, the greater the weight, the more forcible the actions of the muscles become, and the greater the temporary reduction of a deformity. It is by means of frequent and forcible temporary reductions of deformities, by voluntary muscular action, that we can hope to improve, and do improve, those cases which are amenable to any form of active treatment.

"When a patient, lying supine upon the floor, raises a heavy bar above the head so that the arms are perpendicular to the floor, the weight of the bar, the position and weight of the body, and the action of the muscles tend to broaden the entire back and shoulders, and a slow downward movement tends to widen the entire chest, and most markedly at the shoulders. The frequent repetition of the upward and downward movement plays an important part in the rapid development of the chest and back. Pushing

the bells above the head, swinging them with each hand separately and with both hands together, raising a bar above the head, standing and lying down, and the exercises before enumerated, constitute one day's work.

"As the amount of work performed by a patient depends upon the last previous record of that patient, that record must be improved upon at each succeeding visit, unless there be a good and sufficient reason to the contrary. Most patients can well stand three treatments a week. In mild, habitual cases improvement in deportment is noticed by the patients' relatives and friends and by the patients themselves within the first two weeks. In those cases two months' treatment usually suffice to effect a complete cure. In the more severe cases it is not and can not be expected to attain such rapid results, but a certain appreciable improvement is effected, and the amount of improvement depends upon the persistent continuance of the treatment. Where there is a fixed rotation of long standing, with bony and ligamentous changes, the prospects are not so good; but even in those cases I am sure that I have shown considerable improvement in their conditions.

"Patients are not permitted to wear supports of any kind, not even corsets. They should not exercise until at least two hours after a meal, nor when menstruating. The general health is improved by the exercises; the patients gain in height and weight. The girths and breadth measurements, chest depth, strength tests, and lung capacity are generally increased, and the depth of the abdomen is usually decreased. In some cases, especially those of undersized patients, the increase in height is very rapid, and it is certainly more than the increase by ordinary growth. There were marked cases of flat-foot which were benefited, as will be seen by reference to the charts. The

flat feet became shorter through the exercises by the increase in depth of the inner arches.

"This system of work should only be applied by the physician, and he must himself have been trained to the work to intelligently guide those whom he seeks to benefit. The work must be careful, systematic, and regular. Perfunctory work will not do."

To justify the title of this paper—*i. e.*, The Rapid Cure, etc.—I point to the results that I have attained (of twenty-one patients treated, nineteen discharged cured, and two very much improved when treatment ceased), and I wish to report one case (with photographs) of marked deformity

FIG. 1.—Before treatment, February 24, 1896.

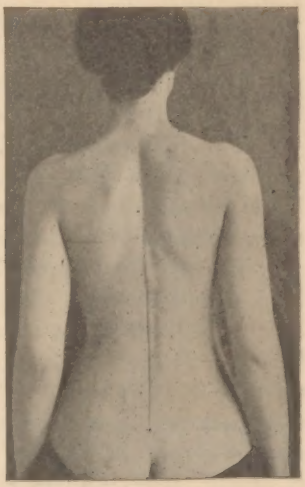


FIG. 2.—March 25, 1896, after three weeks of actual treatment.

in which an almost complete obliteration of that deformity was obtained after three weeks of treatment.

Several of the gentlemen present saw the patient at a

meeting of the Metropolitan Medical Society of New York, at my residence, in March last.

B. B., aged fifteen years, February 12, 1896.

More than a year ago the mother noticed that the patient stooped, and attributed that attitude to carelessness. About two months ago the mother noticed that the left hip was

FIG. 3.—Profile showing eminence at upper portion indicative of rotation, February 24, 1896.

FIG. 4.—March 25, 1896, after three weeks of actual treatment, showing disappearance of rotation.

much larger and higher than the other. For the past few weeks the patient has complained of severe backache, so that she was uncomfortable in a sitting posture. The patient was examined by Dr. I. Oppenheimer, who referred her to me for treatment.

Her menstruation is regular, but she complains of severe dysmenorrhœa, which compels her to take to her bed for a few days at the appearance of each menstrual period.

Examination.—Patient is intensely anæmic. There is a marked lumbar C curve to the right, the greatest deviation being an inch from the median line (plumb line). Both scapulæ are prominent, the right more than the left. Ilio-costal curve well marked on the right side, obliterated on the left. Patient has marked abduction and pronation of the right foot, with occasional pain. There is no spasm. Wears the sole and heel down on the inside.

FIG. 5.—Showing the contracted chest and prominence of the left hip. February 24, 1896.

FIG. 6.—Showing improvement in the conformation of the chest and equalization of the ilio-costal curves, March 25, 1896.

Chicken breast; large depression below clavicles; stoop shoulders well marked; right shoulder higher than the left, and head very poorly poised. Patient has about ten degrees of rotation.

Ordered the shoe of the right foot to be built up a quarter of an inch on the inside of the sole, and advised developmental and corrective treatment.

February 24th.—Patient menstruated last week with great suffering for about ten days. She begins treatment to-day; is extremely weak and very awkward. (She fainted twice while being photographed.)

March 11th.—Examination of the patient after her eighth treatment (a little less than three weeks after treatment was begun) shows the deformity almost obliterated (see photographs). There is no deviation of the spine, the scapulæ are not prominent, the ilio-costal curves are about equalized, the shoulders are of equal height, the rotation of the spine has disappeared, and the right foot is no longer abducted.

18th.—Patient menstruated last week without the slightest pain, recovering fully in four days.

April 18th.—Patient began to menstruate on April 11th, and the flow continued until the 15th, normally and without pain.

The patient was discharged as completely cured on May 2d, after twenty-six treatments.

In closing I wish to call your attention to certain facts which I have observed in the treatment of my cases, and which should commend this system to the preference of all other methods.

1. It is rapid—improvement being noticed by the patients, their relatives, and myself within a week or ten days after treatment has begun.

2. The improvement in general health and the increase of weight.

3. The wholesome effect upon the nervous system by the cultivation of muscular precision and endurance.

4. The marked increase in the lung capacity.

5. The beneficial effect upon the heart's action, as shown by the diminished frequency of the pulse and the

increase of pulse pressure after each treatment, as shown by Basch's sphygmomanometer.

6. That all the patients continue to improve generally and muscularly long after active treatment has ceased.

In defending this heavy work against the adverse criticisms of those who might condemn it, either from their hearsay knowledge of its baneful effects or from their own observations of athletes who have been "trained down" for special work, I cite the following facts, viz.:

The general health has been good. The heart's action has become more vigorous, as shown by the diminished frequency of the pulse and the increased pressure indicated by Basch's sphygmomanometer.

The weights, chest capacities, chest depths, girths, breadths, and strength tests are generally increased, the abdominal depths are decreased, and the feet, the foundation of correct posture, are improved, inasmuch as all flat feet become shorter and the normal feet grow.

All this should prove that they are not overworked.

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EDITED BY

FRANK P. FOSTER, M.D.

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